

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

With respect to the drawing objections under 37 C.F.R. §1.83(a), a translation error at claim 2 has been corrected so as to make the claim consistent with the drawings that already exist. With respect to claim 4, the wear resisting member 7 at Figures 9a and 9b is already shown as being provided over an entire periphery (i.e., an entire circumferential portion) of the side wall of the center electrode. Some clarifying amendments have also been made in the specification to insure no misunderstanding.

Accordingly, no drawing corrections are believed required because the drawings are already in full compliance with 37 C.F.R. §1.83(a).

In response to the rejection of claim 2 under 35 U.S.C. §112, second paragraph, claim 2 has been amended so as to correct a translation error (the same error previously noted with respect to the drawing objections).

The rejection of claims 1-7 under 35 U.S.C. §103 based on applicant's "admitted prior art" in view of Matsubara et al. '706 is respectfully traversed.

In order to improve the durability of a conventional spark plug of the type, as illustrated in Fig. 10, the spark plug of claim 1 is designed to include (a) a noble metal chip disposed on the tip of the center electrode which faces the first ground electrode producing a series of sparks normally and (b) a wear resisting member which is provided on a side wall of the center electrode facing the second ground electrode which works to produce sparks when carbon is adhered to the porcelain insulator.

The spark plug of the admitted prior art in Fig. 10 does not have a wear resisting member (which is distinct from a noble metal chip at the tip) and installed on a side wall of the center electrode facing the second ground electrode.

Matsubara '706 discloses a single noble metal chip which includes a side surface of a center electrode but which, however, faces each ground electrode identically and works to produce sparks regardless of the adhesion of carbon. Specifically, Matsubara fails to disclose any structure in which a wear resisting member distinct from the noble metal chip at the tip is provided on the side wall of the center electrode working to produce sparks when carbon is adhered to the insulator.

As the Examiner has already recognized, the applicant's "admitted prior art" fails to show any wear resisting member provided on a portion of the side wall of the center electrode. To supply this admitted deficiency, the Examiner relies upon Matsubara at Figure 21 and column 18, lines 22-40. The Examiner apparently relies upon "chip (24) which has a wear resisting member (platinum alloy, which has a higher melting point than Ni alloy) on the entire periphery portion of the side wall...".

Initially, it is noted that the description of Figure 21 at column 18, lines 22-40 in Matsubara does not refer to any "chip (24)". Instead, the text actually talks about a "wear resistant member 202...". Presumably, this is intended to refer to the cylindrical electrode element 24 depicted at Figure 21.

The Matsubara '706 teaching is, of course, directed to an entirely different kind of spark plug structure where the entirety of the exposed center electrode is the wear resistant noble metal cylinder 24. While there are two spark gaps defined (one on either side of the center electrode

24) in Matsubara, neither of these radially directed spark gaps can possibly constitute the “first ground electrode...” required by applicant’s claim 1.

In any event, the language of claim 1 has been amended above so as to make it clear that, in this particular definition of applicant’s invention, a noble metal chip is disposed on the tip portion of the center electrode facing the first ground electrode – and that a different wear resisting member is provided on “said portion of the side wall of said center electrode...”. That is, even if the wear resisting member is made of the same noble metal, claim 1 now clearly requires two different instances of wear-resistant material. A first instance being part of the first spark gap defined between a tip of the center electrode opposed to the first ground electrode and a second instance being provided on a side wall of the center electrode as a part of the second spark gap.

Accordingly, even if the Examiner gives no patentable weight to the allegedly “intended use type limitations”, there are clear structural differences between the claimed invention and either instance of prior art being relied upon – let alone any possible combination of such disparate structures as might be proposed even in hindsight.

Given the fundamental deficiencies already noted with respect to claim 1, it is not believed necessary at this time to further catalog the deficiencies of the cited art with respect to dependent claims 2-7.

The Examiner’s attention is also drawn to new claims 14-20. New independent claim 14 defines a spark plug which comprises first and second spark gaps – one being disposed longitudinally and the other being disposed radially with respect to the center electrode. An insulator circumferentially encompassing a portion of the center electrode is also required to

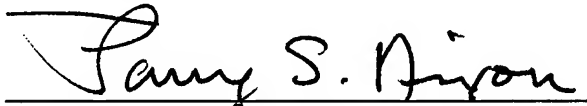
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Appl. No. 10/073,268
September 23, 2004

have an end portion extending partially into the second (i.e., radially directed) spark gap. A wear resisting material is required to be disposed on the side wall portion of the center electrode at the second spark gap. This structure is clearly contrary to the teaching of either instance of prior art now relied upon and is believed to be patentably distinct with respect to the other prior art as well. Dependent claims 15-20 add yet further patentable distinction to the claimed invention.

Accordingly, this entire application is now believed to be in allowable condition and a formal Notice to that effect is respectfully solicited.

Respectfully submitted,

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